

#000052336

9.00-18.10

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S Laboratory Building
Denver, Colorado 80222 1530 4210 E 11th Avenue
Phone (303) 692 2000 Denver Colorado 80220 3716
(303) 691 4700



Roy Romer
Governor

Patricia A. Nolan MD, MPH
Executive Director

December 23, 1993

Mr. Martin Hestmark
U. S. Environmental Protection Agency, Region VIII
ATTN: Rocky Flats Project Manager, 8HWM-RI
999 18th Street, Suite 500, 8WM-C
Denver, Colorado 80202-2405

**RE: Resolution of Water Balance Comment, TM-3 (Model Description),
Phase I RFI/RI Workplan, Walnut Creek Drainage (OU-6), July, 1993**

Dear Mr. Hestmark,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division) has received DOE's informal response to our letter dated December 10, 1993. Our letter, you will recall, noted the lack of an appropriate response by DOE to our earlier questions on water balance calculations.

The attached response, transmitted to the Division via fax on December 21, 1993, has been reviewed by the Water Quality Control Division and is acceptable. DOE may now amend and finalize TM-3 by summarizing the response in the document. Please advise DOE of our approval.

If you have any question, please call Harlen Ainscough of my staff at 692-3337

Sincerely,

Gary W. Baughman, Chief
Facilities Section
Hazardous Waste Control Program

Attachment

cc: Daniel S. Miller, AGO
Jackie Berardini, CDH-OE
Bill Fraser, EPA

11 2015

A-0006-000241

CDH COMMENTS

*Copy - not necessary
Edy. M. P. 12/23/93
HMA*

Item or Section	Comment	Resolution
3 2 1	<p>Although our reviewers do not concur with the DOE responses in the fullest possible extent, it has been determined that the proposed models and their applications will be sufficient, in most cases to meet the goals of the Phase I RFI/RI Workplan for OU-6. The one comment that was not satisfactorily addressed was in respect to Section 3 2 1. On the second comment to section 3 2 1 the responses to the following comments were inadequate</p> <ul style="list-style-type: none"> • There is no discussion on how the water balance will be done • What will be done to check the reasonableness of the water balance estimate? <p>DOE's response states, "The water balance referred to in TM-3 will be used to estimate groundwater discharges." Section 3 2 1 of TM-3 merely states that, "Contaminant fate and transport will also be evaluated during water balance and chemical mass balance analyses as a check for the reasonableness of the ONED3 model results." We are aware that water balance calculations will be performed. How the balance will be calculated and how the results will be evaluated have not been discussed in the TM.</p> <p>DOE should provide an informal written response to the two issues. The Division will then inform DOE if the TM may be amended accordingly or whether additional information is needed.</p>	<p>The ONED3 fate and transport model simulates concentrations of contaminants at the points where groundwater is simulated to discharge to Walnut Creek. In order to estimate contaminant mass loading, which is the input parameter required for the Walnut Creek surface water model, separate water balance analyses to estimate groundwater discharge rates will be necessary (i.e., the groundwater discharge rate = the ONED3 contaminant concentration mass loading by the groundwater discharge rate). The water balance analyses referred to in TM-3 will be used to estimate the groundwater discharge rates.</p> <p>An average annual water balance will be estimated for the saturated alluvium or colluvium in the vicinity of each modeled contaminant migration pathway in order to estimate the annual groundwater discharge rate for that pathway. The first step in this process will be to estimate the net groundwater recharge rate based on available meteorological data, soil and ground cover data, water level data, and other available OU-6 site-specific information. Recharge information developed for OU-2 may also be used if OU-6 data are insufficient. The next step will be to estimate the areal extent of the saturated zone based on the available OU-6 groundwater data.</p>

PostNet™ brand fax transmittal memo 7671

of pages 2

To	Harlan Ainscough	From	Ed Mast
Co	CDH	Co	EGPG
Dept		Phone #	966-8587
Fax #	759-5355	Fax #	966-8556

DEC-21-93 TUE 10:49

Term or Section	Comment	Resolution
		<p>The average annual groundwater discharge rate will then be calculated by multiplying the net groundwater recharge rate by the saturated area. This approach assumes no water is lost from the system due to evaporation from the alluvium or colluvium (i.e., all groundwater recharge ultimately is discharged at Walnut Creek). This is a conservative estimate because it results in a higher estimate of groundwater discharge (and thus, contaminant loading) than would be calculated if evaporation from the alluvium and colluvium were included.</p> <p>Estimates of groundwater discharge will be qualitatively compared to observed seep conditions, where possible, to verify that the groundwater model is not underestimating discharge rates. However, it is anticipated that limited data will be available for OU-6 to quantitatively verify the water balance results. Therefore, the groundwater recharge and discharge rate estimates will also be compared to those calculated for OU-2, where substantially more data are available to estimate recharge and discharge rates.</p>

(4036-563.01) (621) (Comments 2) (12/20/93 1:51pm)